

Original articles

Orofacial Motricity and Dysphagia: analysis of theses defended by Brazilian speech-language pathologists

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ABSTRACT

Purpose: this study aimed to investigate the profile of the theses defended by Brazilian speech-language pathologists with a Doctoral Degree that analyzed issues related to Orofacial Motricity and Dysphagia.

Methods: an exploratory retrospective documentary study, performed based on data collected on the Lattes Platform in 2017. The following variables were included: gender, time between graduation and defense, geographic location of institutions, type of institutions, program area and subareas.

Results: among the 1,125 theses, 92 (8.1%) were related to Orofacial Motricity and 58 (5.1%) to Dysphagia; as for the gender of the speech-language pathologist, most were females (97.9% and 98.3% for Orofacial Motricity and Dysphagia, respectively); the average time between completing graduation and defending a doctorate was similar in both areas (13.8 years for Orofacial Motricity and 13.5 years for Dysphagia); most of the post-graduation degrees granted were in institutions in the Southeast region (70.0%) and in federal educational institutions. As for the area of knowledge, most were concentrated in Health Sciences (96.8%). Analyzing data referring to alterations present in adults, 54.3% in Orofacial Motricity and 82.7% in Dysphagia.

Conclusion: the theses defended by speech-language pathologists addressing Orofacial Motricity and Dysphagia were written by women, on average a little over a decade after graduation in Speech-Language Pathology, and defended in programs offered by federal institutions, located in the Southeast region, in the area of Health Sciences. In addition, most of them focused on the analysis of alterations in adults.

Keywords: Speech, Language and Hearing Sciences; Scientific Production Indicators; Myofunctional Therapy; Swallowing Disorders

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INTRODUCTION

Established and regulated in the country in the 1960s, there are 38 post-graduation courses in Brazil, eleven of which are for Doctoral degrees and the others for Master's Degrees. Before the regulation, the Doctoral courses offered in the country were concentrated in the areas of Biology, Physics, Mathematics and Chemistry, while the Master's courses were distributed in a varied way by the areas of knowledge. In this context, Human Sciences, Social and Applied Sciences, Agricultural Sciences and Engineering are included. Over the following decades, there was an expansion and strengthening of Graduate courses in Brazil, with an expansion in the areas of knowledge, especially in the 1990s. In the year 2000, there were about 80,000 Graduate students in the country, including more than 15,000 professionals with a Doctoral Degree. In this sense, around 40% of the students – equivalent to a third – attended courses in the Humanities and Arts, which suggests a slightly higher rate in the so-called hard sciences¹.

It should be noted that there are other movements that also influenced this expansion, such as the greater number of interdisciplinary programs, and the creation of new universities and federal institutes that impacted on the quantitative increase of degrees and research².

This increase in scientific training in the country, with a consequent increase in publication rates, based on the aspects of diffusion, collaboration and international impact, suggests that there is a possibility of expanding the projection of Brazilian science in the international scientific environment. In this context, the country ranked 13th in the world ranking of scientific production at the beginning of the 21st century^{3,4}.

With regard to the analysis of the production of theses in Speech-Language Pathology, the pioneering studies that are presented below should be highlighted, according to their temporality. The researchers carried out a survey based on the Lattes Platform and in the Graduate Programs that found 91 theses defended between 1976 and the beginning of 1998. This survey found that most studies (96.7%) were produced by women. There was a significant increase (83.5%) from the 1990s onwards, with most theses being defended in Programs related to Communication Disorders (42.9%), at the Universidade Federal de São Paulo (33%), on topics related to Hearing and Balance (40.6%), and Language (27.5%)⁵.

Subsequently, a new research was developed in order to update the data and addressing the beginning

of 1998 until the end of 2003, which found that 203 theses were defended by speech-language pathologists. In this new survey, the choice of Programs related to Communication Disorders remained very close to the previous survey (42.4%), as well as the topics addressed (respectively 40.3% on Hearing and Balance and 37%, Language). This study also presented a comparative analysis between the area of Speech-Language Pathology and the areas of Physiotherapy, Physical Education and Psychology, in addition to presenting the differences between the *lato sensu* and *stricto sensu* courses⁶.

Similarly, a new survey in 2010 that analyzed the production from 1976 to 2008 found a total of 504 theses, still reporting a significant prevalence of female researchers (97.0%), a greater number in state institutions (47.62%), and in programs in the area of Life Sciences (57.54%), especially on Language (34.52%). On the occasion, a regression analysis was carried out which showed the growth in the number of theses according to the year, also reporting a prevalence in the choice of the Program, with emphasis on the areas of Humanities and Applied Social Sciences and Life Sciences in public institutions, with emphasis on state institutions, as well as for the areas of Language and Motricity and Orofacial Functions⁷.

A new data collection was published in 2015 based on the period from 2009 to 2013, which showed 271 Doctoral theses defended which, added to the previous records, totaled the title of 775 doctors. Once again, the profile remained similar in the analysis, as it reported that the highest number of defenses was performed by women (98.2%), in public universities (79.7%), located in the Southeast region (69.4%), and related to language (35.1%). When analyzing the inclusion of speech-language pathologists in Graduate programs not related only to the health (35.8%) there was an expansion of the diverse fields of activity of these professionals⁸.

In addition, a recent survey also showed that, among the 1,125 professionals, the majority (81.7%) once again graduated from a public higher education institution, with 41.5% from state institutions and 40.2% from federal institutions, located in the Southeast region, defending a theme related to the area of Health Sciences, on Language and Audiology. Therefore, it is possible to notice that the profile found is similar to previous surveys and there is a clear and continuous growth of speech-language pathologists with a Doctoral degree, which guarantees the introduction

of speech-language pathologists in research activities and qualified scientific production⁹.

With this historical review, the progressive increase in the number of Doctoral Degrees may have influenced the greater quantity and quality of Brazilian research. Other consequences are the possibility of consolidating the area and the internationalization of those involved.

It should be noted that, when evaluating the analyzed period, Ferreira and colleagues reported a growth variability of 73.3% and 59.7% in themes on Orofacial Motricity and Dysphagia, respectively⁹.

When reflecting on research in these areas, it is possible to better understand the paths that Speech-Language Pathology has taken and, as this year celebrates 40 years since this science was made official, it needs further study for effective consolidation.

In this sense, it is essential to analyze the production of Graduate courses in Brazil, since this area is responsible for producing science, technology and innovation for the productive sector. In addition, the research results in benefits for society as a whole, since the findings may directly impact social well-being with the consequent implementation of public policies and return to the community.

First, this analysis understands that the number of professionals with a Doctoral Degree in an area is a traditional indicator to understand the scientific movement. And, secondly, based on the above, there are other analyzes similar to this one, but none of them came to deepen data regarding Orofacial Motricity and Dysphagia. In addition, although these areas were not present in the beginnings of Speech-Language Pathology, they have shown significant growth in recent years.

Therefore, this study aimed to investigate the profile of theses defended by Brazilian Speech-Language Pathologists with a Doctoral Degree that analyzed issues related to Orofacial Motricity and Dysphagia.

METHODS

This is an exploratory retrospective documentary study, which does not require approval from the Research Ethics Committee.

Data collection was performed based on the database used in the study by Ferreira et al.⁹. The study also included a consultation with the Lattes Platform of the National Council for Scientific and Technological Development (CNPq) that was carried out on April 3, 2018. The survey of variables was carried out as

follows: a simple search was carried out in “Search Lattes”, by Brazilian professionals with a Doctoral Degree, including professional performance in “Type of Filter”, and using the descriptors “Health Sciences”; subsection “area” = “Speech-Language Pathology”. Thus, 1,333 records were retrieved up to this stage.

In a subsequent step, the researchers included other exclusion criteria, looking for researchers without a Doctoral degree, not having a degree in Speech-Language Pathology and being a foreigner, reaching the final sample composed of 1,125 theses eligible for analysis.

Subsequently, the researchers selected only the theses that addressed topics related to Orofacial Motricity (OM) and Dysphagia. In order to prepare this classification, at least two researchers were assigned to read the title of the selected studies and, in case of doubt, access the abstract.

At the end of the process, the sample consisted of 153 theses, but three experimental studies carried out with animals were excluded from the analysis that is detailed below.

The selected variables involved the researcher, gender (male or female) and time between graduation and thesis defense. As for the thesis, the variables were as follows: year of defense (by decade) geographic location of the Higher Education Institution (HEI) where the thesis was defended (North, Northeast, South, Southeast and Central-West); type of HEI (Public, Private); Area of Graduation Program, as proposed by the Coordination of Improvement of Higher Education Personnel (CAPES) - Health Sciences, Biological Sciences, Exact and Earth Sciences, Linguistics, Literature and Arts -; Subareas according to the division into Committees of the Department of Orofacial Motricity and Dysphagia of the Brazilian Society of Speech-Language Pathology and Audiology (Orofacial Motricity, if child/adolescent, adult or elderly; and Dysphagia, whether neurogenic, mechanical or mixed).

The analysis included a numerical description and percentage of data from a record made in a spreadsheet prepared in Microsoft Excel 2016.

RESULTS

During the investigated period (1976-2017), 1,125 theses were found, including 92 (8.1%) related to the OM and 58 (5.1%) to Dysphagia.

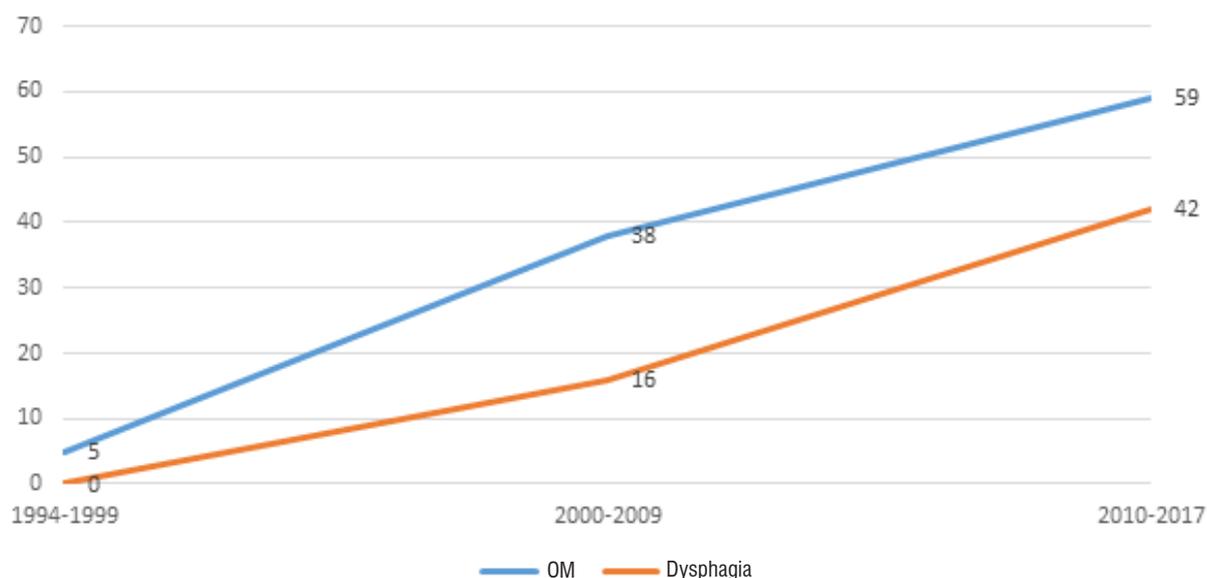
In turn, the researchers' gender variable showed the presence of 98% of women (as shown in Table 1).

Table 1. Numerical description and percentage of researchers by gender

Variable	Orofacial Motricity (n=92)		Dysphagia (n=58)		Total (n=150)	
	n	%	n	%	n	%
Gender						
Female	90	97.9	57	98.3	147	98.0
Male	02	02.1	01	01.7	03	02.0

As for the temporality of scientific production, the first thesis defended in the OM area is from 1994, while two theses in 2000 were the first to address Dysphagia.

Figure 1 shows an increase in defenses over the last decade in both areas.



Caption: OM = Orofacial Motricity

Figure 1. Theses defenses related to Orofacial Motricity and Dysphagia, over the years

The average time between graduation and the defense of the Doctoral Degree is similar in both areas, since there was an average of 13.8 years (minimum of 5 years and maximum of 30 years) for MO, while an average of 13.5 years (minimum 7 years and maximum 34 years) was found for Dysphagia.

As for the geographical location of the educational institution, most are located in the Southeast region. Graduation Programs offered by public institutions are the most sought after by most speech-language pathologists, and as for the knowledge area, according to CAPES classification, most doctors decided for Health Sciences (as shown in Table 2).

Table 2. Numerical description and percentage of theses defended in the areas of Orofacial Motricity and Dysphagia, according to geographic location and type of Higher Education Institution and area of knowledge

Variable	Orofacial Motricity (n=92)		Dysphagia (n=58)		Total (n= 150)	
	n	%	n	%	n	%
Geographical location of the HEI						
North	-	-	-	-	-	-
Northeast	08	08.7	04	06.9	12	08.0
Southeast	66	71.8	39	67.2	105	70.0
South	11	12.0	14	24.1	25	16.7
Central-West	01	01.0	01	01.8	02	01.3
Other countries	06	06.5	-	-	06	04.0
Type of HEI*						
State	39	42.4	21	36.2	60	40.0
Federal	39	42.4	27	46.6	66	44.0
Private	08	08.7	10	17.2	18	12.0
International	06	06.5	-	-	06	04.0
Knowledge Area*						
Health Sciences	89	96.8	57	98.2	146	97.3
Linguistics, Literature and Arts	02	02.1	-	-	02	01.3
Exact Sciences	01	01.1	-	-	01	00.7
Biological Sciences	-	-	01	01.8	01	00.7

*Nomenclatures used by the Coordination of Improvement of Higher Education Personnel(CAPES)

Abbreviations: HEI=Higher Education Institution; CAPES=Coordination of Improvement of Higher Education Personnel

When analyzing the theme according to the division into Committees of the Department of OM, of the Brazilian Society of Speech-Language Pathology and Audiology, Table 3 shows that the theses defended by

speech-language pathologists with a Doctoral degree on the subject of OM prioritized investigating the age group of adults and elderly people, followed by childhood and adolescence.

Table 3. Numerical and percentage description of the theses defended in the area of Orofacial Motricity, according to the themes of the Committees proposed by the Department of Orofacial Motricity of the Brazilian Society of Speech-Language Pathology and Audiology (SBFa) (n=92)

Department of Orofacial Motricity	N	%
Childhood and adolescence	34	37.0
Adults and elderly	42	45.7
Both themes	13	14.1
Not applicable	03	03.2
Total	92	100.0

In the same direction, Table 4 also shows that the majority of professionals who defended their theses related to Dysphagia also decided to investigate the

adult age group, considering a greater number of issues related to neurogenic dysphagia.

Table 4. Numerical and percentage description of the theses defended in the area of Dysphagia, according to the Committees proposed by the Department of Dysphagia of the Brazilian Society of Speech-Language Pathology and Audiology (SBFa) (n=58)

Department of Dysphagia	n	%
Committee on Dysphagia in Children	10	17.2
Committee on Mechanical Dysphagia in Adults	19	32.8
Committee on Neurogenic Dysphagia in Adults	25	43.1
Committees on Mechanical and Neurogenic Dysphagia in Adults	04	06.9
Total	58	100.0

It should be noted that this study found three experimental studies performed with rats that were excluded from the sample¹⁰⁻¹².

DISCUSSION

Thesis analysis is a traditional indicator to understand the trend of scientific production in an area. In this sense, this study shows that by 2017, 92 speech-language pathologists had completed the Doctoral Degree in Orofacial Motricity and 58 in Dysphagia⁹.

As for the gender variable, there is a cultural distinction in some professions in Brazil and, as such, the data show that only three researchers were men among all the studies, with two investigating topics on OM and one on Dysphagia.

On the one hand, these data show the advancement of women in the field of science; but, on the other hand, the data also show that Speech-Language Pathology is a predominantly female profession. This issue can be understood in contemporary times when considering the categories of analysis, such as gender, patriarchy and sexual division of labor, as determinants of the way in which the capitalist system includes female labor. The place occupied by women in the labor market and the social division of roles between men and women, which historically have placed them in a position of disrepute, are the result of a socio-historical process with diverse determinants in each society. Specifically regarding Brazil, this context is a result of the influence of the patriarchal system and the violent colonization to which the Brazilian people were subjected¹³.

It should be noted that this study applies the variable “sex” to designate “gender”, which means that it refers to the female role in society. Despite the lengthy debate this topic requires, this study will not delve further. However, this is a reflection resulting from recurrent data from previous studies and the characterization of the Speech-Language Pathology profession with a prevalence of women, which also leads to a

predominance of women with Doctoral degree in the researched areas.

Regarding the specialist in Orofacial Motricity and Dysphagia, according to the Brazilian Federal Council of Speech-Language Pathology and Audiology, *lato sensu* graduate courses have held a higher number than *stricto sensu* in both areas. In the same period of the study, there were a total of 122 specialists in Dysphagia for 58 professionals with a Doctoral degree, while there were 1880 specialists in Orofacial Motricity for 92 professionals with a Doctoral degree. This difference is probably due to financial factors or the reduced number of programs that allow the continuity of studies at the *stricto sensu* level. The researcher's training process implies time and dedication superior to those required in a specialization course, since it requires two years for a Master's Degree and three to five years for a Doctoral Degree. In addition, the trained professional may become financially dependent on the possibility of a scholarship, both for their subsistence and for carrying out their research. In this sense, there is a fear of a negative impact on the qualification of new professionals with a Doctoral degree at the moment due to the numerous funding cuts that have occurred.

In addition, there is a lack of integration projects between undergraduate and, especially, graduate courses with elementary and secondary education. To this end, the development of educational actions at all levels of education, showing the relevance of scientific production and its impacts on social and cultural issues, could enhance the process of knowledge construction.

Regarding the difference in time between the Undergraduate and the Doctoral Degree, an average of 10 years was found in both areas. The same result was also found in a recent publication¹⁴, in which the authors investigated the difference between the time of the Undergraduate Degree and the completion of the Doctoral Degree. This issue deserves attention, as there are divergent perspectives in the literature. Mendes et al.¹⁵ report that age is a relevant factor in the

exercise of a future researcher and that the sooner the student starts the Master's course, the better the results will be, since the funding agencies believe that the Doctoral Degree should be completed by the age of 30. The international Graduate model follows this pattern of having young professionals with a Doctoral Degree, as it advocates professional maturity for scientific activity. However, professional experience and speech-language pathology clinic can contribute to research with the perspectives lived in practice, since reflections made from this experience certainly collaborate in the elaboration of the discussion of the findings.

In this context, a greater number of theses on dysphagia addressed studies on neurogenic dysphagia, which may be due to the number of strokes in the country. About 90,000 deaths from cerebrovascular diseases are registered per year in Brazil, and the Unified Health System (SUS) recorded about 200,000 hospitalizations due to stroke in 2008¹⁶. These data are in line with other studies¹⁷ that also report neurological disorders, such as stroke, head injuries, Parkinson's disease, multiple sclerosis, dementia, etc., as one of the main causes of dysphagia, which would explain the high number of studies focused on neurogenic dysphagia.

As for the geographic location in which the studies were carried out, the analysis shows that the studies are concentrated in the Southeast region, especially in the state of São Paulo, which may be due to the significant number of universities and colleges in this region. Consequently, the HEIs in the state of São Paulo were the institutions with the highest number of scientific articles, with emphasis on the Universidade Federal de São Paulo (Unifesp), which had the greatest representation of speech-language pathologists in the areas of OM and Dysphagia, in addition to being the institution with greater number of partnerships with other research institutions¹⁸.

At the moment, there are 12 *stricto sensu* post-graduation courses in Brazil that are recognized in the field of Speech-Language Pathology by CAPES, which offer a Master's Degree⁹, including one Professional Master's Degree. Seven of these courses also offer the Doctoral Degree and the possibility for the speech-language pathologist to carry out their research in programs in other related areas. According to MEC¹⁹, 49% of graduate courses in the country are located in the Southeast region. On the other hand, the North region has the lowest concentration of institutions, representing only 6% of the country as a whole. In turn, the Northeast region has 18% of the courses in the

country, which represents the second place in number of HEIs, especially due to the recent phenomenon of investment in higher education in this region. In order, the number of courses in this region is followed by the South and Central-West regions.

Regarding the type of institution, the data from this study show that federal HEIs are the most common, followed by state and private institutions, while international HEIs have the lowest number within this spectrum. Among the private institutions, the different Pontifical Catholic Universities stand out. It should be noted that these results are also in line with findings from a previous study⁹.

Regarding the research production of professionals with a Doctoral degree, most studies on Orofacial Motricity and Dysphagia were related to the Health Sciences, which can be explained by the nature of the research and the insertion of Speech-Language Pathology.

According to the themes of the Committees proposed by the Department of Orofacial Motricity and Dysphagia of the Brazilian Society of Speech-Language Pathology and Audiology, this study also showed that the highest percentage of studies on Orofacial motricity and Dysphagia was found in the adult/elderly population (45.7% and 43.1%, respectively). It is believed that there is a possible greater adherence to treatment when investigating a more mature age group. On the other hand, especially in the area of Dysphagia, adult/elderly people represent a population more affected by changes resulting from aging and, therefore, affected by diseases that tend to worsen with age.

In both categories, the studies addressed therapeutic processes aimed at resuming important vital functions.

Finally, although a greater production of theses has been found related to OM, there is a greater quantity related to the area of Dysphagia, as shown by the most recent recognition of the area by the Brazilian Federal Council of Speech-Language Pathology and Audiology, in 2010. Therefore, there is a faster production of theses in Dysphagia compared to the scientific production related to OM.

Although no public policy has been developed through studies on dysphagia, since no references were found in official documents, the introduction of speech-language pathologists into hospitals is a big step towards maintaining the quality of life of patients. Among other things, the introduction of these professionals makes it possible to reduce the time of use

of feeding tubes, the risks of bronchoaspiration and, consequently, the patient's hospitalization, in addition to their work with language issues and guidelines and bedside interventions. Therefore, there is an undeniable need for further reflection on the category of Hospital Speech-Language Pathology, which is a result of studies on dysphagia. It is also important to include the professional in the permanent staff of the hospital, also being part of the teams in the intensive care units, and with equivalent payment. This prevents professionals from being hired on a temporary basis by outsourced workers and whether or not they are included in the staff, depending on the hospital managements²⁰.

With the COVID 19 pandemic, the performance of health professionals has gained a prominent role in the current scenario. In this context, patients who progress to the most severe condition of the disease need orotracheal intubation for up to 10 to 14 days, breathing through mechanical ventilation. After the patient has recovered and the orotracheal tube is removed (extubation), some patients may develop a swallowing disorder. Thus, the speech therapist should be called at this time (phase of greater stability of the patient's clinical condition) to carry out the speech assessment and intervention, which may include consultation, direct or indirect therapies for cognition, orofacial motricity, swallowing, breathing or changes in communication in the stages of treatment after orotracheal intubation²¹.

The knowledge arising from the theses defended should contribute to the implementation of public policies and cooperate so that society has better health conditions and better quality of life.

It should be noted that there were limitations in carrying out this study, since the Lattes Platform depends on the researchers themselves to update the data and, as such, may not reflect the actual number of theses defended and, as the search was carried out until 2017, the study does not include the evolution of the last four years of research.

CONCLUSION

The theses defended by Speech-Language Pathologists addressing Orofacial Motricity and Dysphagia were written by women, on average a little over a decade after graduation in Speech-Language Pathology, and defended in Programs offered by federal institutions, located in the Southeast region, in the area of Health Sciences. In addition, most of the theses focused on the alterations in adults.

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